



# CALIFORNIA PLANT PEST and DISEASE REPORT

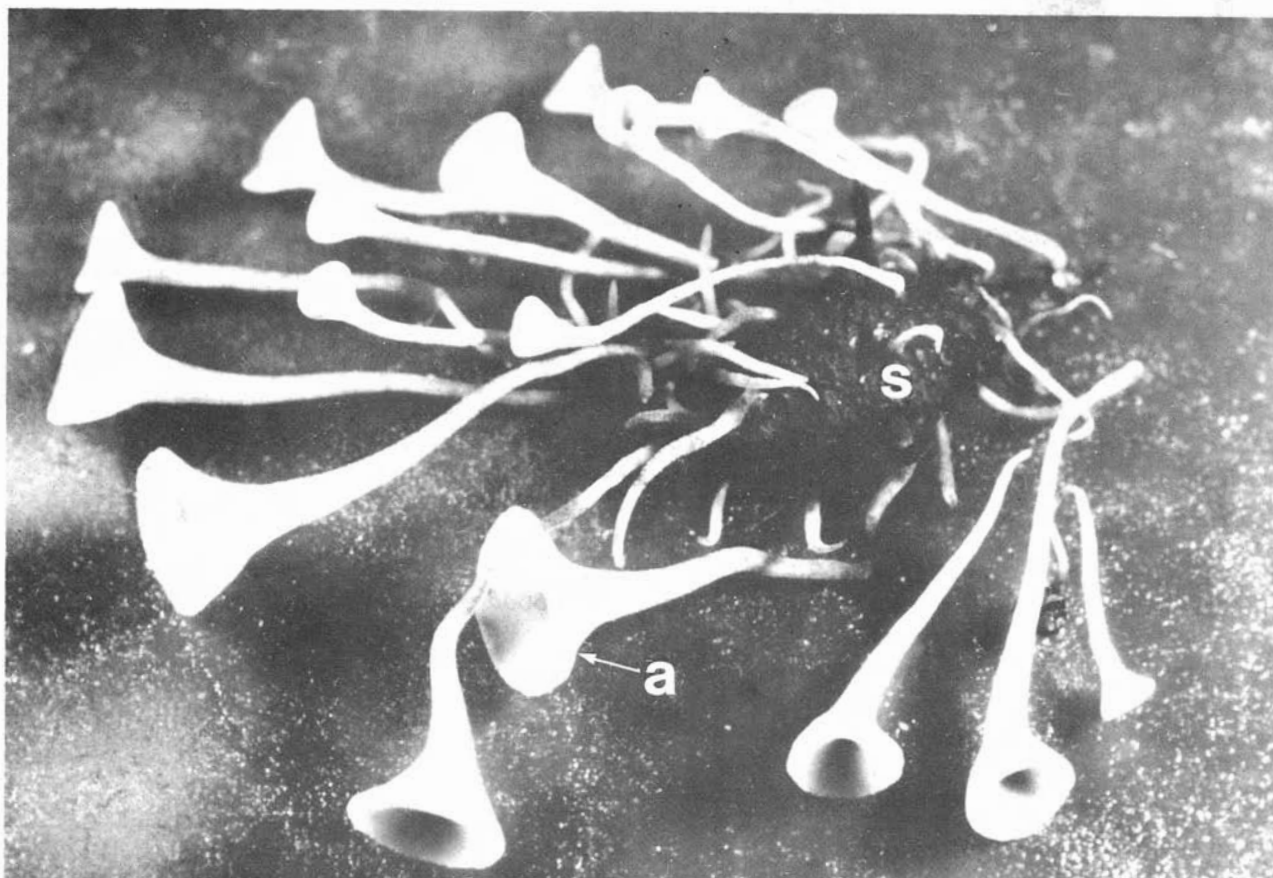
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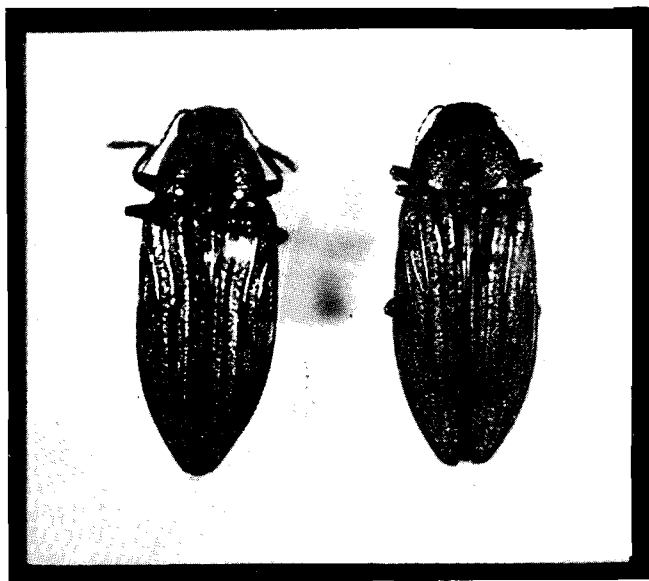
California Department of Food and Agriculture 1220 N Street Sacramento California 95814



Reproductive structures of the fungus, *Sclerotinia sclerotiorum*, isolated from an infected bean plant. The fungus is capable of causing severe damage on a wide range of vegetables and ornamentals. Airborne ascospores are produced in apothecia (a) which arise from sclerotia (s), hard survival structures made of compacted fungal tissue. Photo by C. Fukushima.

THE "BEASTLY" BUPRESTID  
*Buprestis aurulenta* L.

Ron Somerby



One of the most damaging species of flatheaded borer in the Western States and British Columbia is the golden buprestid (*Buprestis aurulenta* L.). The adults are beautifully colored blue-green or iridescent green; the sides are bordered with metallic copper. Their size is from 12 to 22 mm long. They are handsome robust beetles that feed on needles of Douglas-fir and possibly other conifers.

The eggs are deposited in flat masses packed into cracks in the wood. The early larval stages are hairy with two terminal sharp projections, but these characters disappear as the larvae mature.

The larvae burrow in and around fire scars or mechanical injuries. This damage is especially evident in ponderosa pine and Douglas-fir.

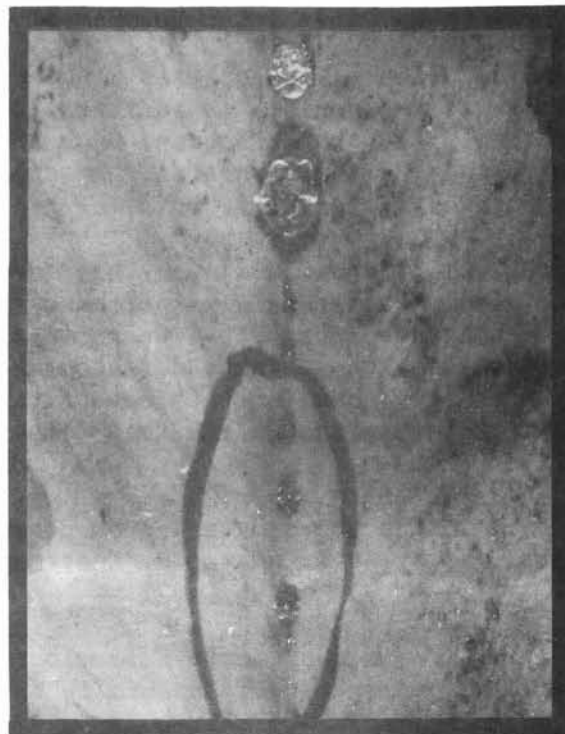
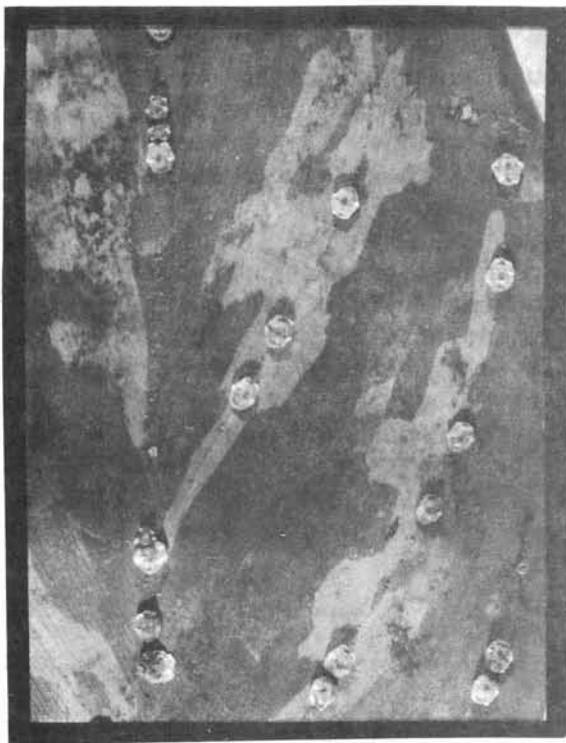
In the Pacific Northwest the larvae are a principal concern in buildings, where they weaken timbers and boards by tunneling. In addition, their exit holes may occur through finished surfaces, to the dismay of homeowners and businesses. However, major structural damage usually occurs in special situations as in wooden storage tanks.

Infestations normally occur in the forest and lumberyards. Sometimes however, infestations occur in exposed portions of wooden structures. Under natural conditions the life cycle is several years, but in buildings this cycle may take from 30 to 50 years.

*Ronald Somerby is a Systematic Entomologist with the CDFA Analysis and Identification Unit, Sacramento.*

RED WAX SCALE *Ceroplastes rubens*  
(Homoptera Coccoidea Coccidae)

Ray Gill



Red wax scale *Ceroplastes rubens*. Left: overview of infested leaf about twice life size. Right: closeup of infested leaf. Circled area shows younger specimens.

Several collections of this "A" rated scale insect have been made on plants growing in various California nurseries in recent months. The most recent find was a heavy infestation on *Aglaonema* plants (see photos). This collection was made on April 28 by Sally Piper of the Santa Barbara Agricultural Commissioner's office.

In view of the increased number of finds of this insect it is wise at this point to provide some information about it and to urge other County biologists to be on the lookout for it.

DESCRIPTION: Fully matured adult females are 3 to 4 mm long, irregular in shape and moderately convex in profile. The most striking feature of this scale is the pearly pinkish grey coloration. There are also four raised semicircular white transverse bands. Two of these bands will be found on either side near the middle. A small, white, button-like wax structure may be found in the very center of the dorsal surface. Immature forms of this scale are star-like and may resemble whitefly pupae.

**ECONOMIC IMPORTANCE:** This scale has a wide host range including fruit crops, forest trees and ornamentals. It is a serious citrus pest in Japan, and of citrus, mango and avocado in New Caledonia. It is also a serious pest of pines in the Southern Hemisphere, particularly to stands of Monterey pine. It is also of economic importance in Southeast Asia, China, India, Italy, Australia, New Guinea and Pakistan. It has been eradicated from the U.S. several times, especially from Florida, Connecticut and California. It has the potential of being a serious pest of greenhouse plants.

**DISTRIBUTION:** This pest is widely distributed in the tropical and subtropical areas of the world. In addition to localities mentioned above, it is found in Puerto Rico, the Caribbean, Guam and Hawaii as well as many areas in Africa, Asia and the South Pacific. It apparently would be able to survive outdoors in many areas of California.

**BIOLOGY:** Red wax scale may have one or two annual generations depending on climate. Each female is parthenogenetic and can produce 600-700 eggs which are incubated for 3 to 4 weeks in a cavity under the body of the adult. The crawlers hatch, then wander about until a feeding site is located. The scales are usually found on the leaves, particularly along the midrib or other large leaf veins, although the scales may also be found on the twigs.

\*Much of the above data has been condensed from USDA pest advisory data sheets compiled by S. Nakahara, D. Knott and others.

*Ray Gill is a Systematic Entomologist with the CDFA Analysis and Identification Unit, Sacramento. His specialty is insects in the order Homoptera.*

## SEED-BORNE DISEASE

Kathleen Kosta

"Seed-borne" disease is a term frequently used yet often misunderstood. The presence of the pathogen in, on or somehow associated with the seed implies that a pathogen is seed-borne. There are two forms of seed-borne disease: seed may be "infected" or "contaminated." If the pathogen has penetrated the seed tissue and has become established, the seed is "infected." Successful infection of a seed by a pathogen is dependent upon the proper environmental conditions along with a susceptible host and appropriate pathogen. The parent plant must also be at a susceptible stage of growth for successful infection of the seed. Pathogens have been known to become established in various parts of seeds including the ovule, embryo, endosperm, seed coat and pericarp. Barley stripe mosaic virus for example, has been found in the ovule of the seed of cereals, and *Colletotrichum lindemuthianum*, the fungus causing bean anthracnose, may establish itself within the bean seed embryo. *Rhizoctonia solani*, also a fungus, has been found in the embryo of pepper seed. Some seed-borne viruses become established within the seed coat, such as TMV in tomato seed, as do some seed-borne fungi such as *Septoria petroselinii* in parsley seed (Figure 1), and *Phoma lingam* in cabbage seed.

One very important fact to remember is that although a pathogen may be "seed-borne," the disease may not necessarily be "seed transmitted;" that is, the resultant plant may not necessarily become infected. However, even if disease transmission does not occur, the vigor and possibly the germination of the seed itself may be affected.

"Contaminated" seed occurs when the pathogen is carried on the seed surface or when fungal resting structures, such as sclerotia, are mixed with the seed. Contamination may occur during the windrow stage of the crop or during and after harvest in the handling, transporting, or threshing of the seed. Virus particles, bacterial cells, fungal spores, or fungal sclerotia may adhere to the seed surface, or small pieces or infected plant debris or loose fungal reproductive structures may become mixed with the seed. The sclerotia of *Sclerotinia* sp. have been found mixed with seed of bachelor button, bean, pea, and radish, to mention a few. The sclerotia of *Rhizoctonia* sp. were recently found mixed in with carrot seed (Figure 2). Because of the variability of sclerotial sizes and shapes, and the morphological similarities between some seeds and sclerotia, sclerotia are not always eliminated during seed cleaning procedures.

Seed may be infected or contaminated, but without the correct combination of host susceptibility, pathogen, and environmental conditions, seed-borne diseases may not be transmitted or become established within seed tissues at all. Further studies into the sites of pathogen infection and the required environmental conditions for disease development are needed to protect the seed industry more effectively.

## REFERENCE

Neergaard, P. 1977. Seed Pathology, Vol. 1. Halsted Press, New York.

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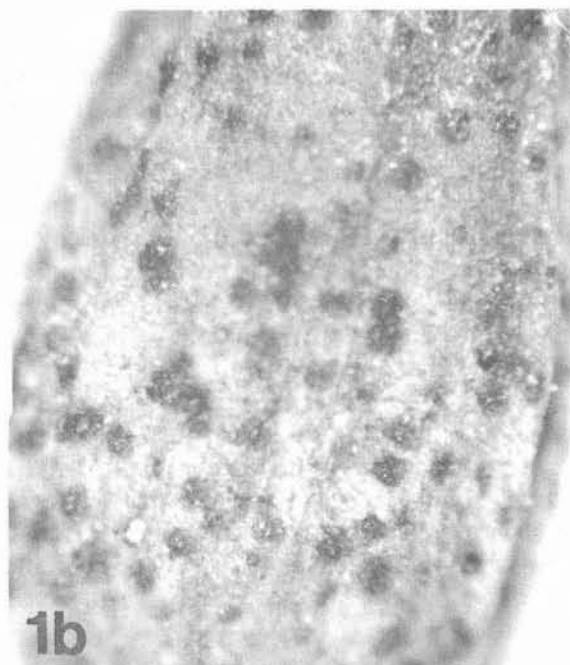


Figure 1a. Parsley seed infected with *Septoria petroselinii*. Figure 1b. Pynidia develop in the seed coat.

Figure 2a. Carrot seed contaminated with *Rhizoctonia* sp. sclerotia. Figure 2b. Sclerotia may resemble the shape and size of the seed.

POWDERY MILDEW OF TOMATOES  
IN SAN DIEGO COUNTY

K. Sims and J. Esparza

The powdery mildew fungus *Leveillula taurica*. (Lev.) Arn. exists worldwide but is most commonly found in the Mediterranean region, Central Europe and the near East (1). The conidial stage is referred to as *Oidiopsis taurica* (Lev.) Salm.; it was found on *Mimulus auranticus* by Salmon (2) in 1906 near Berkeley, California, and also in Marin, Alameda and Monterey counties by Yarwood (3). The fungus was reported on tomato for the first time in California in 1978 in the Imperial Valley by Kontaxis (4). Nesbitt also reported the disease on tomatoes in Orange County in 1978. In 1979, the disease was reported on tomatoes from Merced and San Diego counties (Figure 1). In San Diego County the disease was severe in a number of fields in the fall plantings of 1980 and 1981.

*L. taurica* differs from other powdery mildews in its endoparasitic habits. The mycelium is not limited to the epidermis, but penetrates through the stomata, extends into and through the mesophyll, and may involve both leaf surfaces at the point of infection. Conidiophores, each bearing a single conidium, protrude through the stomata and can be seen with the aid of a 10X hand lens. The disease is characterized by the appearance of light yellow to bright orange spots about  $\frac{1}{4}$  inch (5mm) in diameter initially on the lower (oldest) leaves of tomato plants (Figure 2). In later stages and when the disease is severe as the plants mature, diseased leaves may be seen throughout the plants. As the disease progresses, the centers of the spots become necrotic and are surrounded by yellow halos (6). The lesions enlarge, coalesce and eventually the entire leaf dies. In San Diego County and Orange County, symptoms on tomatoes are most obvious from August to the end of the growing season - generally December. The disease appears to be especially damaging under warm, dry conditions.

Of the many plants reported as hosts (7), only 3 infected weed species were found during a detailed examination in infected tomato fields and environs in San Diego County. These are apparently new reports for California. The weeds were common sow thistle (*Sonchus oleraceus*), wild artichoke (*Cynara cardunculus*), and white stem filaree (*Erodium moschatum*). Bell peppers and other reported hosts of *Oidiopsis* were not found infected in San Diego County when growing in close proximity to heavily infected tomato fields. It appears there are strains of the powdery mildew fungus which attack only selected hosts among the many reported.

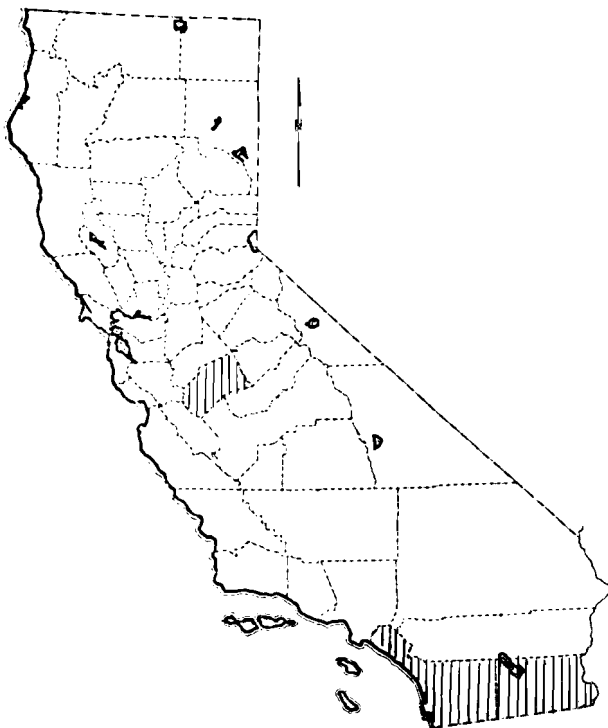


Figure 1. Distribution of *Leveillula taurica* on tomato in California.





Figure 2. Leafspots on tomato leaves caused by the powdery mildew fungus, *Leveillula taurica*.

#### REFERENCES

1. Commonwealth Mycological Institute. 1978. Distribution Maps of Plant Diseases. Commonwealth Agric. Bureau, Vol. III, Map 217.
2. Salmon, L. 1906. Ann. Bot. 20: 187-200.
3. Yarwood, C.E. 1977. *Leveillula* in USA (Abstr. No. PA-55) Proc. Am. Phytopath. Soc. 4: 212.
4. Kontaxis, D.G., and A.F. Van Maren. 1978. Powdery mildew on tomato - a new disease in the U.S.A., PDR 61: 892-93.
5. Mukerji, K.J. 1968. Commonwealth Mycological Institute. Descriptions of Pathogenic Fungi and Bacteria No. 182.
6. Campbell, R.N., and D.H. Hall. 1979. Tomato powdery mildew alert. Calif. Plant Path. No. 46.
7. Hirata, Koji. 1966. Host Range & Geographical Distribution of the Powdery Mildews. Faculty of Agric., Niigata Univ., Niigata, Japan.

Kenneth Sims is a plant pathologist with the San Diego County Department of Agriculture. Jose Esparza is a plant pathologist with the Detection unit of CDFA.

Editor's note: Since the preceding article was accepted for publication, tomato powdery mildew has also been reported in the Brentwood area of Contra Costa County by D.G. Kontaxis.



## AN ACARID MITE NEW TO CALIFORNIA

Tokuwo Kono

Kathleen Casanave of Environmental Monitoring and Pest Management made a first California find, when she collected mites on greenhouse specimens of *Centaurea diffusa*, diffuse knapweed. The mite was identified by T. Kono (CDFA) and confirmed by Dr. E.W. Baker (USDA) as *Tyrophagus neiswanderi* Johnston and Bruce.\*

*Tyrophagus neiswanderi* is a mite that belongs to the family Acaridae. It belongs to genus *Tyrophagus*, which consists of very closely related mites that are both ubiquitous and cosmopolitan. In Ohio, its existence was known since 1956 when it was found feeding on cucumber plants in a greenhouse. It was described finally in 1956 by D.A. Johnston and W.A. Bruce (Ohio Agricultural Research and Development Center Research Bulletin 977).

Most likely, this mite has been in California for a long time. It remained undetected for two obvious reasons. First, it never was collected. Second, if it had been collected it was misidentified as *Tyrophagus putrescentiae*, the mold mite, which is a very commonly encountered member of the genus and is very closely related to *T. neiswanderi*.

According to Kathleen, "the mites were found at the soil line level of potted diffuse knapweed appearing wilted and generally exhibiting loss of vigor. Such plants pulled right out of the pots. The roots were rotted, mushy and foul smelling."

Subsequently, Kathleen collected the mite on roots of healthy *Chondrilla juncea*, skeletonweed, in the same greenhouse.\*\*

The description of *T. neiswanderi* was based on specimens from Ohio and New York.

\*I.D. No. 82C24-3

\*\*I.D. No. 82D8-23

*Tokuwo Kono is a systematic entomologist with the CDFA Analysis and Identification Unit, Sacramento. One of his specialties is the biology and identification of mites.*

A Note From the Entomology Editor:

Do you need more information about the strange and exotic creatures that you see everyday?

The following article deals with land planarians, animals which are fascinating, unusual and, probably more important, commonly seen by county biologists, farm advisors and other field biologists. Similar scientific curiosities are encountered not only in the insect world but in other animal groups and in the plant kingdom as well. Very often questions are asked about such curiosities but very likely the answers to such questions are not available to most of you. As past editor of CPPDR, one of Charlie Papp's ambitions was to provide this type of information for you, to attempt to provide answers to similar questions that you or your constituents might ask.

As your new editor in charge of the entomological part of the CPPDR, I will try to continue providing information similar to that in the article on land planarians. As a former county entomologist-biologist, I feel that I understand your needs for such information. Incidentally, the land planarian information was reprinted with permission from the Florida Department of Agriculture publication "Triology," the source of many informational leaflets produced by the Florida Department of Agriculture and Consumer Services for quite a few years.

In order for me to better provide this type of service, I would like to ask you to write down and send me some of the scientific curiosities that you have seen and that you would like to have more information about. Please try to restrict your inquiries to insect and other related arthropods if possible. I may not be able to answer all of them right away, but it will give me some extra ideas for future issues and it will give me further insight into some of your field problems.

Ray Gill

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Planarian species found in California are different from those found in Florida. *Geoplana mexicana* and *Bipalium kewense* are the species most frequently identified by our laboratory; while *Geoplana vaga* and *Bipalium adventitum* are less frequently encountered.

Nematology Circular No. 75  
May 1981

Fla. Dept. Agric. & Consumer Services  
Division of Plant Industry

LAND PLANARIANS  
(Tricladida: Terricola)

R. P. Esser

Almost each month specimens of grey to brown long flat worms with several dark stripes running down the back are submitted to the Nematology Bureau for identification and information concerning their biology. These worms are land planarians and are included in the phylum Platyhelminthes. Almost all specimens submitted belong to the genus Bipalium.

History: A land planarian (Bipalium kewense Moseley) was first described from a greenhouse at Kew Botanical Gardens near London, England, in 1878. The same species has been found commonly in American greenhouses since 1901. B. kewense is rarely encountered in our submissions.

Characterization: Land planarians are soft, bilaterally symmetric, acoelomate, dorsally-ventrally flattened worms, 3-50 cm long by 0.2-0.5 cm wide. They lack a respiratory and circulatory system, a skeleton, and an anus (5,6,9). Heads of many land planarians are expanded lunate (fig. 2) or tapering to a blunt point. Eyespots may be present on the head. Colors of Florida species range from greenish grey to brown with dark narrow stripes on the dorsal side. Some of the exotic species (fig. 3) are brightly colored gold and black. A mouth, which also serves as an anus, is present near mid-body on the ventral surface. A protusible muscular plicate pharynx serves as a feeding organ and is attached to a three-branched intestine. The space between organs is filled with parenchyma. Circular and longitudinal muscles are present. A cerebral ganglia serves as a brain, innervating a ladder-shaped nervous system. Excretion of fluid wastes is accomplished with a primitive proto-nephridial system.

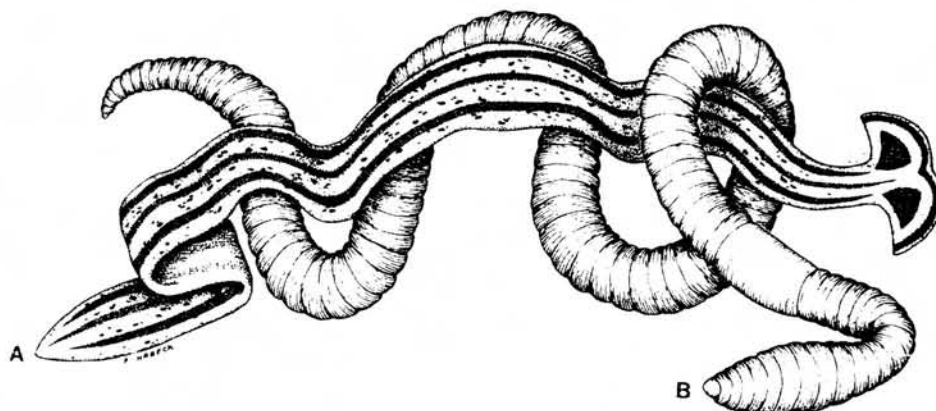


Figure 1. A land planarian (A) attacking an earthworm (B).

Economic Importance: Land planarians occasionally invade breeding beds in commercial earthworm farms and severely deplete the earthworm population (4). In greenhouses, where some collectors believe they might damage plants, they are considered harmless.

Geographic Distribution: Land planarians thrive in high temperatures and humidities, thus they are widely distributed in tropical and subtropical areas. They have been detected in natural habitats in Florida and Louisiana. They have been reported in greenhouses in Alabama, California, Georgia, Illinois, Massachusetts, Mississippi, New Jersey, New York, North Carolina, Ohio, and Oklahoma (3,7). Land planarians have not been detected west of the Mississippi River in mountain or desert areas.

The widespread occurrence of land planarians is a result of horticultural practices and dispersion of potted plants in commerce. In tropical and subtropical areas, once established in a greenhouse, they disperse to the adjacent environment.

Habitat: Because land planarians are photonegative during daylight hours and require high humidities, they are found in dark, cool, moist areas under objects such as rocks, logs, man-made materials, in debris, or under shrubs, and on the soil surface following heavy rains. Land planarians are also found in caves but are rare in rural sites. Movement and feeding occur at night. High humidity is essential to survival. They can survive dessication only if water loss does not exceed 45% of their body weight (6). Land planarians are most abundant in spring and fall (3).

**Locomotion:** Land planarians glide smoothly on the substrate by the action of powerful, closely spaced cilia in a special medial ventral strip (creeping sole), on a thin coat of mucus secreted on the substrate by cyanophilous glands opening into the creeping sole. Land planarians that migrate on plants or objects above the ground, sometimes regain the ground by lowering themselves down by a string of mucus (1).

**Nutrition:** Land planarians devour earthworms, slugs, insect larvae, and are cannibalistic. Prey are located by chemoreceptors located in a single ciliated pit under the head or in a ciliated ventral groove. Struggling prey are held to the substrate (fig. 1) and entangled in slimy secretions from the planarian. The pharynx is protruded from the mouth and into the prey. Food is reduced to small particles prior to entering the gastrovascular cavity. The food particles are taken by epithelial cells in amoeboid fashion and formed into food vacuoles (8). Planaria store food in digestive epithelium and can survive many weeks shrinking slowly in size without feeding. They are capable of utilizing their own tissues such as reproductive tissue for food when reserves are exhausted.

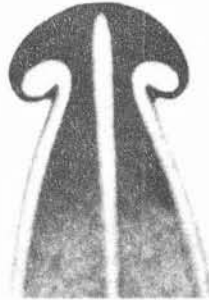


Figure 2. Bipalium voighti head after von Graf.



Figure 3. Exotic land planaria. Top: B. rauchi; bottom: B. quadricinctum after von Graf.

**Reproduction and Development:** Reproduction is principally by fragmentation at the posterior end. Lateral margins pinch in about 1 cm from the tail tip. Severance occurs when the posterior fragment adheres to the substrate and the parent worm pulls away. The posterior fragment is motile immediately, and within 7-10 days a lightly pigmented head begins to form. One to two fragments are released each month (2).

Eggs are deposited in 0.6-9.7 cm cocoons that are bright red when deposited. Within 24 hr the cocoons turn black. Planarians emerged in approximately 21 days (2).

**Planarian Enemies:** Land planarians are rarely devoured by other animals, since surface secretions appear distasteful, if not toxic. Protozoans, including flagellates, ciliates, sporozoans, and nematodes have been detected in land planarians (5). Because of their cannibalistic habit, land planarians may be their own worst enemy.

**Survey and Detection:** In daylight look for flat worms with expanded head under rocks, logs, and man-made materials only where cool damp areas exist. Slime trails are tell-tale evidence of land planarians but might also indicate slugs or snails.

In worm beds, look for land planarians attached to earthworms by mucus membranes. Collected specimens rarely survive when sent alive to Gainesville via bus or mail. Specimens should be placed in a vial of 70% alcohol or 4% formaldehyde.

#### REFERENCES

1. Buchsbaum, R. 1948. Animals without backbones. Univ. Chicago Press. 405p.
2. Connella, J. V., and D. H. Stern. 1969. Land planarians: Sexuality and occurrence. Trans. Amer. Microsc. Soc., 88:309-310.
3. Dundee, D. S., and H. A. Dundee. 1963. Observations on the land planarian Bipalium kewense Moseley in the Gulf Coast. Systematic Zoology, 12:36-37.
4. Edwards, C. A., and J. R. Lofty. 1972. Biology of earthworms. Chapman and Hall LTD, London. 283p.
5. Graf, L. von. 1899. Monographie der Turbellarien II. Trichladida. In H. G. Bronn (ed.), Klassen und Ordnungen des Tier-Reichs Bd, IV, Apt. ppl733-3369.
6. Hyman, L. H. 1951. The Invertebrates: Platyhelminthes and Rhynchocoela the acoelomate Bilateria, McGraw-Hill Book Co., London, 550p.
7. Klots, A. B. 1960. A terrestrial flatworm well established outdoors in the northeastern United States. Systematic Zoology, 9:33-34.
8. Pennak, R. W. 1953. Fresh-water invertebrates of the United States. Ronald Press Co., N. Y., 769p.
9. Riser, N. W., and M. P. Morse. 1974. Biology of the Turbellaria. McGraw-Hill, London, 530p.

## Bacterial Leaf Spot of Magnolia

Carl M. Lai

An unusual leaf spot was discovered recently on *Magnolia soulangeana* and on *Magnolia loebneri* var Merrill. in a Los Angeles county nursery. The characteristic symptoms of the disease are angular, dark brown, necrotic leaf spots of various sizes (Figure 1) which are surrounded by yellow halos (Figure 2).

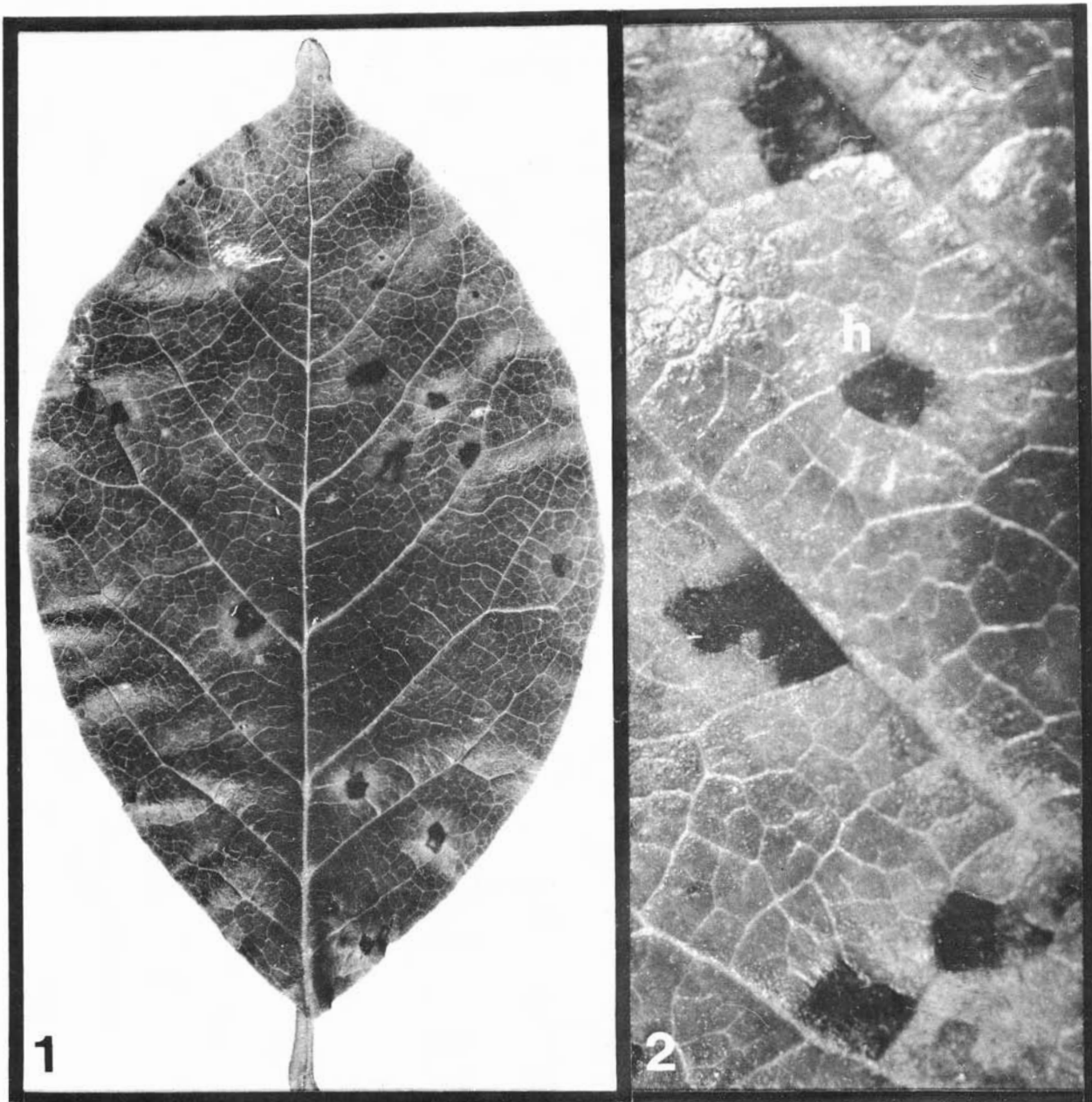


Figure 1. Leaf of *Magnolia loebneri* showing necrotic leafspots caused by *Pseudomonas syringae*. Figure 2. Closeup of leafspots showing surrounding halos (h). Photo by David Higuera.

The symptoms are visible on both the upper and lower leaf surfaces. Severely infected plants usually defoliate early. The occurrence of this leaf spot is especially prevalent in young nursery plants which are sprinkler irrigated. Plants which are hand watered do not have the problem of free moisture on the leaf surfaces, and consequently do not develop symptoms of the disease.

A plant pathogenic bacterium was isolated from symptomatic leaves. Based on biophysical and tobacco hypersensitivity tests, the bacterium has been identified as *Pseudomonas syringae*. A similar disease has been reported on a Magnolia hybrid in Australia in 1976 (Ref.).

#### Reference

Dephoff, C. and C. Nazum. 1976. A new bacterial leaf spot on a Magnolia hybrid. APPS Newsletter 5 (3) 32-33, Bio Chemical Res. Inst. Dept. Agric., Rydalmere, NSW Australia.

\* \* \* \* \*

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A New Thrips in California:  
*Echinothrips americanus*

Ray Gill

Nymphs and adults of this "Q" rated thrips were collected by Dave Wilson of Sutter County on May 17. The thrips were collected from *Dieffenbachia* in a nursery in Yuba City. Identification was made by Tokuwo Kono of Analysis & Identification.

According to Dave the thrips were causing dieback of the host. Photographs which Dave took of the infested plants indicate that the injury is a rasping of the leaf surface, giving it a silvery, wilted appearance.

This thrips has been collected twice since 1974 on quarantine shipments of *Dieffenbachia* plants from Florida. It is therefore reasonable to assume that Florida plants may be the source of the Yuba City infestation. Any *Dieffenbachia* plants in quarantine should be thoroughly inspected for the presence of these thrips.

Magnolia, "Touch-me-not," grass, *Impatiens* and many forest plants are listed as hosts. The distribution extends from southern Quebec to Florida and westward to central Iowa. In the field, this species will be dark brown to black in color and will resemble greenhouse thrips or bean thrips. Slide mounted specimens can be recognized in the lab because of the polygonal reticulations on the body surface and the "clubbed" tips of the long setae associated with the veins of the forewings.

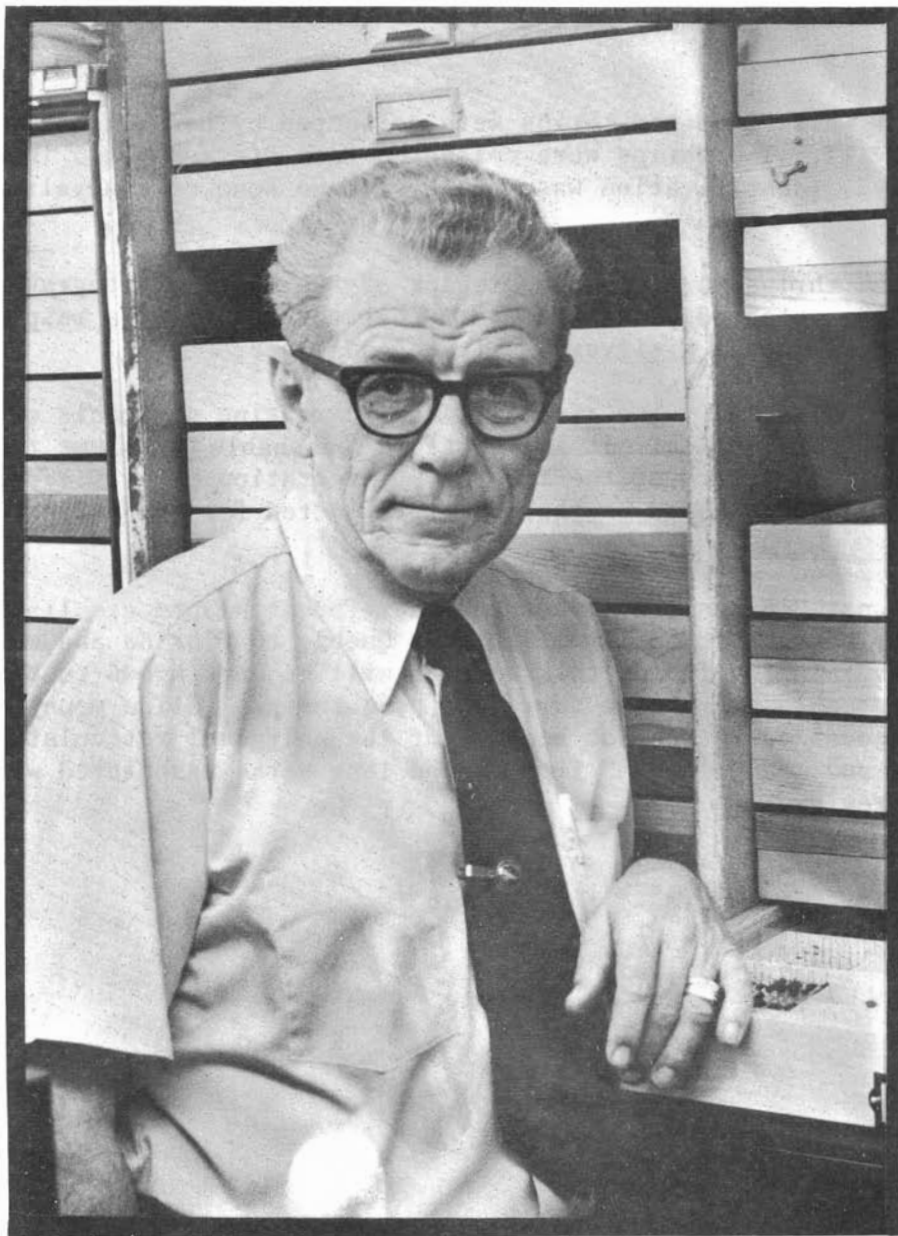
*Erratum*

Pest Rating Error -

Ted Fisher of U.C. Riverside has called our attention to an incorrect rating for decollate snail *Rumina decollata* which occurred in the Pest rating Part I and II lists of Vol. 1 Number 3 and 4. The rating should be "C" not "B". Sorry about that Ted.



### Charles Papp Retires



This is our peerless predecessor, Charles Papp. Charlie is retired now but we still see a lot of him. His wife Magda works here in A & ID as an Ag. Bio. Tech for Ron Somerby and Tom Eichlin. Charlie is also helping his daughter Margie in her graphics and typography business here in Sacramento. As part of the typography business he is developing "Entomography," a journal for scientific papers on Entomology. Charlie's "Entomography" endeavor is in partnership with Tom Eichlin of the Entomology Lab. So, besides dropping by to see Magda and Tom, Charlie is also here looking for more scientific papers that can be published in "Entomography."

Charlie has done a commendable job on many, many projects around the Department. The California Plant Pest and Disease Report is an excellent example. Charlie spent a lot of

time producing several issues which were, as we have heard, well thought of by everyone. Charlie will be here to give us advice but unfortunately we will not have his know-how, time and energy to produce anything similar to what Charlie accomplished in the last several issues of CPPDR.

The Editors

HIGHLIGHTS

INSECTS

GYPSY MOTH (*Lymantria dispar*) - (A) - Sixteen collections since the middle of March. The name of the state is given in parentheses if the origin of the specimen was positively traced. Information is arranged by county.

SAN DIEGO COUNTY: Escondido, live egg mass on bicycle (New Jersey).

SAN BERNARDINO COUNTY: Chino, live and dead egg mass and larvae on driftwood (Connecticut); Montclair, larvae and adults, dead, on picnic table and benches (New York); Redlands, live egg mass on clay pots (Connecticut); Upland, egg mass, presumably dead, on picnic bench (Massachusetts).

RIVERSIDE COUNTY: Riverside, live egg mass on outdoor furniture (Pennsylvania).

ORANGE COUNTY: Fullerton, live and dead egg mass, larvae and pupae on picnic table (New York); Mission Viejo, pupae and larvae, dead, on patio furniture (Connecticut).

LOS ANGELES COUNTY: Newhall, egg mass, larvae, and pupae, dead, on metal table (Connecticut); Woodland Hills, egg mass, larvae, and pupae, dead on redwood table and benches (New York).

SANTA BARBARA COUNTY: Santa Barbara, pupal cases on picnic table (New Hampshire).

SANTA CRUZ COUNTY: Boulder Creek, egg mass, larvae and pupae on picnic table (Massachusetts).

SANTA CLARA COUNTY: Palo Alto, live and dead egg mass, larvae and pupae on wooden ladder (Massachusetts).

CONTRA COSTA COUNTY: Danville, dead pupae on patio table (New York).

SONOMA COUNTY: Sonoma, egg mass, condition not known, in vacuum cleaner bag (Vermont).

SOLANO COUNTY: Vallejo, live egg mass and pupae on picnic table (Connecticut).

All determinations done by T.D. Eichlin and R. Somerby.

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A LABIID EARWIG (*Shingolabis hawaiiensis*) - (Q) - Intercepted March 23 by T. Wurster at Santa Barbara on *Dracaena marginata* from Hawaii (Det. by A.R. Hardy).

CHINESE ROSE BEETLE (*Adoretus sinicus*) - (Q) - Dead specimens of this scarab beetle were found by Stewart and Surjan on April 8 in rice grain shipped from Hawaii to Biggs, Butte County (Det. by F. Andrews).

RASPBERRY ROOT GALL WASP (*Diastrophus radicum*) - (Q) - Specimens of this cynipid wasp were found infesting the roots of caneberry plants (*Rubus*) by J. Kovarik on March 17. The plants were shipped to Watsonville, Santa Cruz County from Yankton, South Dakota (Det. by M. Wasbauer).

PICKLEWORM (*Diaphania nitidalis*) - (A) - On April 14 larvae of this pyralid moth were found boring into the stems of various cucurbits by Shimoda. The plants were shipped from Florida to Los Angeles (Det. by T. Eichlin).

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - (Q) - On March 29 these lasiocampid pupae were found by Awbrey on a bicycle shipped from New York to Morgan Hill, Santa Clara County (Det. by T. Eichlin).

A MUSCID FLY (*Cordilura* sp.) - (Q) - An adult of this fly was intercepted on dried pineapple from Taiwan by John Westoby of Sonoma County on April 21. (Det. by K. Corwin).

A CTENUCHID MOTH (*Lymire edwardsii*) - (Q) - Larvae intercepted on April 7 at San Bernardino by G. Nash on *Ficus benjamina* shipped from Florida (Det. by T. Eichlin).

MEXICAN FRUIT FLY (*Anastrepha ludens*) - (A) - Larvae of this fly were found in a Texas grapefruit by a customer in a restaurant in West Sacramento, Yolo County on May 7. The specimens were submitted to the Health Department who in turn submitted them to the Ag. Commissioner. The larvae were dead (probably from fumigation) (Det. by K. Corwin).

FRUIT FLY LARVAE (*Anastrepha* sp.) - (A) - Other larvae, probably also Mexican fruit fly, have been found dead in fumigated fruit in other parts of the state. Larvae were found in oranges bought in a local grocery in Placerville, El Dorado County and were submitted to the Ag. Commissioner in Vallejo, Solano County on April 13. Larvae were also found in grapefruit mail ordered from Texas to Smith Flat, El Dorado County on April 14 (Det. by K. Corwin).

ELISA MEALYBUG (*Pseudococcus elisae*) - (Q) - Live adult specimens were found on April 28 by Rene R. Vasquez in Encinitas, San Diego County, on *Dracaena tricolor* imported from Honduras; R.E. Watts found a specimen on April 8 in Moorpark, Ventura County, in leaf axils of *Dracaena marginata* "tricolor" shipped from Costa Rica; live nymphs and adults were found on April 20 in Lodi, San Joaquin County, by M. Croce on leaves of *Aglaonema* imported from Puerto Rico (Det. by R. Gill).

ACUMINATE SCALE (*Kilifia acuminata*) - (A) - San Mateo County: East Palo Alto, April 20, H. Struffenegger found dead nymphs and adults on a leaf of *Monstera deliciosa* originally from Florida (Det. by R. Gill).

A SOIL MEALYBUG (*Geococcus coffeae*) - (Q) - Los Angeles County: Lawndale, April 14. N. Kellam found 3 adults/root (alive and dead) on *Chrysalidocarpus lutescens* shipped from Hawaii (Det. by Esther Chao, Conf. by R. Gill).

LESSER SNOW SCALE (*Pinnaaspis strachani*) - (A) - Live and dead adult specimens were collected by J. Jensen from *Cocos nucifera* shipped from Hawaii - in Vacaville, Solano County, on April 19, and in Woodland, Yolo County, also on April 19 (Det. by R. Gill).

A SNAIL (*Bradybaena similaris*) - (Q) - Four collections. San Diego County: Escondido, April 7. Live adult found by Lynn Parker on *Dracaena* shipped from Florida. Los Angeles County: Glendale, April 19. Specimens found on orchids and bromeliads by Adams and Cude, imported from Mexico via Texas; Temple City, April 20. D. Papilli found specimens on *Ficus* and *Schefflera* shipped from Florida. Contra Costa County: Richmond, March 30. A live adult found by H. Sparkman on *Ficus decora* from Florida (Det. by T. Kono).

A SOIL MEALYBUG (*Rhizoecus americanus*) - (Q) - Live and dead eggs, nymphs, and adults were found by H. Sparkman on April 26 in Richmond, Contra Costa County. They were collected from *Areca* palm shipped from Florida (Det. by R. Gill).

MINING SCALE (*Howardia biclavis*) - (A) - Three collections. Los Angeles County: Gardena, April 13, Murphy found specimens on stems of *Ficus benjamina* originating from Florida (Det. by R. Gill); Torrance, May 4, N. Kellam and Murphy collected 10 adults/stem, live, from *Ficus benjamina*, origin unknown (Det. by T. Kono). San Diego County: Chula Vista, March 24, live adults, 5/stem, were found on *Allamanda*, origin unknown (Det. by R. Gill).

MAGNOLIA WHITE SCALE (*Pseudaulacaspis cockerelli*) - (A) - Six collections. Riverside County: Riverside, April 22, found on coconut imported from Hawaii, by George Nash. Los Angeles County: Canoga Park, April 7, K. Cornett found live adults, 30/leaf on *Chamaedorea* from Florida. Panorama City, March 19, live adults, 15/leaf, also found by Cornett, on *Chrysalidocarpus lutescens* shipped from Florida (Det. by Esther Chao, Conf. by R. Gill). Walnut, April 6, C. Olson found 2 adults/leaf, live, on *Phoenix roebellini* imported from Florida. Santa Clara County: Mountain View, April 1, Don Schamburger collected live adults from *Schefflera* originating in Hawaii. Contra Costa County: Richmond, April 27, H. Sparkman found live and dead eggs and adults on *Areca* palm shipped from Florida (Det. by R. Gill).

RED WAX SCALE (*Ceroplastes rubens*) - (A) - Live adults were found on palm March 18, in Mountain View, Santa Clara County by D. Bass and M. Guerra. A heavy infestation was found on April 28 on *Aglaonema* plants at Santa Barbara by Sally Piper (Det. by R. Gill).

GREEN SHIELD SCALE (*Pulvinaria psidii*) - (A) - Four collections. On *Ficus benjamina*, at Whittier on March 17 by Dan Papilli, at El Cajon on April 7 by Mike Dorsey and Tom Smith, at Fallbrook on April 29 by Steve Desserick and at Oxnard on March 5 by M. Hixon (Det. by R. Gill).

A SOFT SCALE (*Lichtensia tuberculata*) - (Q) - An adult female and numerous immature males of this unusual scale were collected on March 17 at Whittier, Los Angeles County on *Ficus benjamina* by Dan Papilli (Det. by R. Gill).

A WHITEFLY (*Aleurocerus* sp) - (Q) - Pupal cases of this whitefly were found on cut *Chamaedorea* fronds on April 8 at Los Angeles by Shimoda (Det. by R. Gill).

A WHITEFLY (near *Aleurodicus*) undescribed genus and species - (Q) - Live specimens of this whitefly, related to the spiraling whitefly, were found on an orchid plant donated to the Los Angeles County Arboretum by a plant fancier in San Bernadino County. The orchid plant apparently originated in Mexico (Det. by R. Gill).

FLORIDA WAX SCALE (*Ceroplastes floridensis*) - (Q) - M. Hixson collected live adults on *Ficus benjamina* shipped from Brownsville, Texas on March 30, in Camarillo, Ventura County (Det. by R. Gill).

TORPEDO BUG (*Siphanta acuta*) - (Q) - A dead adult of this interesting plant-hopper was found on April 28 in a shipment of palms moving from Hawaii to Chula Vista, San Diego County by Ginsby & Walsh (Det. by R. Gill).

ANTS - A large variety of "Q" rated ants were intercepted during this period:

*Wasmannia auropunctata* was collected on March 31 from *Ficus benjamina* shipped from Florida to Whittier by Dan Papilli.

*Paratrechina vividula* was also found on *Ficus benjamina* which was shipped from Florida to El Cajon, San Diego County. Collections by Mike Dorsey and Tom Smith.

*Paratrechina fulva* was found on April 9 by Kellam at Manhattan Beach on *Ficus benjamina* plants of unknown origin.

*Technomyrmex albipes* was collected on April 19 by T. Watkins from Hawaiian cut flowers at Manteca, San Joaquin County.

*Tapinoma melanocephalum* live adults were found on April 28 on Hawaiian plants shipped to Chula Vista. Collections were by Gensky and Walsh.

*Monomorium floricola* was collected from Hawaiian cut flowers by T. Watkins on April 26 at Manteca.

*Pheidole megacephala* was found on Hawaiian *Anthurium* plants by Ingram and Hopkins at Nupomo, San Luis Obispo County on March 23.

*Tetramorium* sp. on orchids and *Tillandsia* from Texas on March 30 at Los Angeles by Shimoda.

(Ant Determinations were by M. Wasbauer, F. Andrews & R. Gill)

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#### Miscellaneous Unidentifiable Insects Intercepted in Quarantine

A TORTRICID MOTH - (Q) - Intercepted on *Asparagus plumosus* at Ukiah, Mendocino County from Florida by Bengston on April 14 (Det. by R. Somerby).

A LYGAEID BUG - (Q) - Intercepted on orchids and bromeliads from Mexico by Adams and Cude at Glendale, Los Angeles County on April 19 (Det. by A. Hardy).

A CHALCID WASP - (Q) - Intercepted on orchids from Guatemala on March 24 by V. Cooke at Chula Vista, San Diego County (Det. by M. Wasbauer).

BORDER STATION INTERCEPTIONS

INSECTS

BENTON:

PURPLE SCALE (*Lepidosaphes beckii*) - (B) - One interception, May 6, on grapefruit from Colorado by Matthew Pastell (Det. by R. Gill).

CHAFF SCALE (*Parlatoria pergandii*) - (B) - One interception, May 6, on grapefruit from Colorado by Matthew Pastell (Det. by R. Gill).

BLYTHE:

HICKORY SHUCKWORM (*Laspeyresia caryana*) - (A) - Three interceptions, May 3 to May 6, of live and dead larvae on pecans from Mississippi and Texas. Collected by G.T. Anderson (Det. by T. Eichlin and R. Somerby).

MT. SHASTA:

HOLLY LEAFMINER (*Phytomyza ilicis*) - (B) - One interception, April 25, on holly brought from Portland, collected by C. Silva. Possible oviposition scars were detected on holly from Washington intercepted on April 24, by M. Stirling (Det. by K. Corwin).

YERMO:

GYPSY MOTH (*Lymantria dispar*) - (A) - Two interceptions of egg masses, both originating in New York. One, live, found April 11 by E. Morris, and a second, presumably dead, found on a travel trailer April 13 by D. Cameron (Det. by T. Eichlin).

WINTERHAVEN:

HICKORY SHUCKWORM (*Laspeyresia caryana*) - (A) - Two interceptions of live and dead larvae both found on pecans from Texas by J. Kirby, on March 30 and April 14 (Det. by R. Somerby and T. Eichlin).

VERTEBRATES

SQUIRREL - Three specimens from Colorado intercepted at Truckee on May 6.

GERBIL - Two specimens originating from Washington intercepted at Mt. Shasta on June 3.

MONK PARAKEET - A specimen from Washington intercepted at Mt. Shasta on May 28.

FERRET - One specimen, intercepted May 24 at Mt. Shasta, originating from Oregon. Another specimen, from Tennessee, intercepted June 2 at Yermo.

CALIFORNIA BLACK LIGHT TRAP REPORT

For the week ending \_\_\_\_\_

DATE	4-18-82	4-19-82	4-25-82	4-27-82	
LOCATION	Bellota	Manteca	Bellota	Manteca	
TEMPERATURE		76-43		79-48	
ALFALFA LOOPER <i>Autographa californica</i>			1		
ARMYWORM <i>Pseudaletia unipuncta</i>	2	67	6	41	
BEET ARMYWORM <i>Spodoptera exigua</i>					
BLACK CUTWORM <i>Agrotis ipsilon</i>	1	5		4	
CABBAGE LOOPER <i>Trichoplusia ni</i>					
CLOVER CUTWORM <i>Scotogramma trifolii</i>	3	14	7	2	
CODLING MOTH <i>Laspeyresia pomonella</i>					
CORN EARWORM, (ETC.) <i>Heliothis zea</i>					
FALSE CELERY LEAF TIER <i>Udea profundalis</i>	5	4	8	1	
GRANULATE CUTWORM <i>Feltia subterranea</i>				3	
SALT MARSH CATERPILLAR <i>Estigmene acrea</i>					
SPOTTED CUTWORM <i>Amathes c-nigrum</i>	8	14	11		
SUGAR BEET WEBWORM <i>Loxostege sticticalis</i>					
TOBACCO BUDWORM <i>Heliothis virescens</i>					
W. YELLOW STRIPED ARMYWORM <i>Spodoptera praefica</i>					
GRAPE LEAF FOLDER <i>Desmia funeralis</i>		1			
NAVEL ORANGE WORM <i>Amyelois transitella</i>		12			
A NOCTUID MOTH <i>Xylomyges hiemalis</i>	8				
PEACH TWIG BORER <i>Anarsia lineatella</i>				1	
VARIEGATED CUTWORM <i>Peridroma saucia</i>		2	1		



SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	5-2-82	5-2-82	5-4-82	5-9-82	5-9-82	5-10-82
LOCATION	Bellota	Roberts Island	Manteca	Bellota	Manteca	Roberts Island
TEMPERATURE			56-89		44-72	
ALFALFA LOOPER <i>Autographa californica</i>						
ARMYWORM <i>Pseudaletia unipuncta</i>	15	52	20	16	6	30
BEET ARMYWORM <i>Spodoptera exigua</i>		22				
BLACK CUTWORM <i>Agrotis ipsilon</i>	1	15	4	2	5	1
CABBAGE LOOPER <i>Trichoplusia ni</i>						
CLOVER CUTWORM <i>Scotogramma trifolii</i>	15	7	7	7	1	
CODLING MOTH <i>Laspeyresia pomonella</i>			1			
CORN EARWORM, (ETC.) <i>Heliothis zea</i>				1		
FALSE CELERY LEAFTIER <i>Udea profundalis</i>	5					
GRANULATE CUTWORM <i>Feltia subterranea</i>	1		3	3	3	
GRAPE LEAFFOLDER <i>Desmia funeralis</i>			2			
NAVEL ORANGEWORM <i>Amyelois transitella</i>			21			
OMNIVOROUS LEAFROLLER <i>Platynota stultana</i>						
PEACH TWIG BORER <i>Anarsia lineatella</i>			75		2	
ROUGH SKINNED CUTWORM <i>Proxenus mindara</i>	4					
SALT MARSH CATERPILLAR <i>Estigmene acrea</i>						
SPOTTED CUTWORM <i>Amathes c-nigrum</i>	45	36	15	15	2	
SUGARBEET WEBWORM <i>Loxostege sticticalis</i>						
TOBACCO BUDWORM <i>Heliothis virescens</i>						
VARIEGATED CUTWORM <i>Peridroma saucia</i>	5	2		2	1	
W. YELLOW STRIPED ARMYWORM <i>Spodoptera praefica</i>	1	4	3	3	1	
WHITE LINED SPHINX MOTH <i>Hyles lineata</i>	1					

SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	5-12-82	5-16-82	5-16-82	5-18-82		
LOCATION	Roberts Island	Manteca	Roberts Island	Bellota		
TEMPERATURE		54-91				
ALFALFA LOOPER <i>Autographa californica</i>	2	2	11	4		
ARMYWORM <i>Pseudaletia unipuncta</i>	80	5	84	3		
BEET ARMYWORM <i>Spodoptera exigua</i>	3	12	19			
BLACK CUTWORM <i>Agrotis ipsilon</i>	2	2	1	1		
CABBAGE LOOPER <i>Trichoplusia ni</i>						
CLOVER CUTWORM <i>Scotogramma trifolii</i>	1	4	3	11		
CODLING MOTH <i>Laspeyresia pomonella</i>						
CORN EARWORM, (ETC.) <i>Heliothis zea</i>				1		
FALSE CELERY LEAF TIER <i>Udea profundalis</i>						
GRANULATE CUTWORM <i>Feltia subterranea</i>		4	1	3		
GRAPE LEAF FOLDER <i>Desmia funeralis</i>		1				
NAVEL ORANGE WORM <i>Amyelois transitella</i>		30				
OMNIVOROUS LEAF ROLLER <i>Platynota stultana</i>						
PEACH TWIG BORER <i>Anarsia lineatella</i>		112				
ROUGH SKINNED CUTWORM <i>Proxenus mindara</i>			3	2		
SALT MARSH CATERPILLAR <i>Estigmene acrea</i>			1			
SPOTTED CUTWORM <i>Amathes c-nigrum</i>	11	8	39	8		
SUGAR BEET WEBWORM <i>Loxostege sticticalis</i>				1		
TOBACCO BUDWORM <i>Heliothis virescens</i>						
VARIEGATED CUTWORM <i>Peridroma saucia</i>	1	1	1	1		
W. YELLOW STRIPED ARMYWORM <i>Spodoptera praefica</i>	3	1	7	12		

SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	5-23-82	5-24-82	5-26-82	5-31-82	5-31-82	6-1-82
LOCATION	Bellota	Manteca	Roberts Island	Manteca	Roberts Island	Bellota
TEMPERATURE		61-104		55-85		
ALFALFA LOOPER						
<i>Autographa californica</i>	3	1	3			
ARMYWORM						
<i>Pseudaletia unipuncta</i>	7	8	16		3	1
BEET ARMYWORM						
<i>Spodoptera exigua</i>	1	10	20		5	
BLACK CUTWORM						
<i>Agrotis ipsilon</i>	3	2	1	4	5	2
CABBAGE LOOPER						
<i>Trichoplusia ni</i>						
CLOVER CUTWORM						
<i>Scotogramma trifolii</i>	14	9	6	2	1	8
CODLING MOTH						
<i>Laspeyresia pomonella</i>						
CORN EARWORM, (ETC.)						
<i>Heliothis zea</i>						
FALSE CELERY LEAFTIER						
<i>Udea profundalis</i>	2					
GRANULATE CUTWORM						
<i>Feltia subterranea</i>	7	13	4			3
GRAPE LEAFFOLDER						
<i>Desmia funeralis</i>		1				
NAVEL ORANGEWORM						
<i>Amyelois transitella</i>		39		5		
OMNIVOROUS LEAFROLLER						
<i>Platynota stultana</i>						
PEACH TWIG BORER						
<i>Anarsia lineatella</i>		116				
ROUGH SKINNED CUTWORM						
<i>Proxenus mindara</i>	16		1		1	3
SALTMARSH CATERPILLAR						
<i>Estigmene acrea</i>						
SPOTTED CUTWORM						
<i>Amathes c-nigrum</i>	37	6	16	1	1	1
SUGARBEET WEBWORM						
<i>Loxostege sticticalis</i>		3				
TOBACCO BUDWORM						
<i>Heliothis virescens</i>						
VARIEGATED CUTWORM						
<i>Peridroma saucia</i>	3	5	1	2		4
W.YELLOWSTRIPED ARMYWORM						
<i>Spodoptera praefica</i>	25	4	9		4	3
TOBACCO HORNWORM						
<i>Manduca sexta</i>	1					